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PARADISE LIVING ARTICLE / MARCH 2017

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To Diesel or Not to Diesel, That is the Question!

Lately, I have had quite a few discussions with clients about which engine type is the right choice, diesel or gas. Let us assume we are dealing with inboard vessels, as diesel has not penetrated the outboard market just yet. I have to say that I prefer diesel, but that does not mean that diesel is the correct choice in every situation.

Diesel engines have some very distinct advantages over gasoline engines. Diesel engines produce much more torque than gasoline engines of similar size and horsepower. Torque is extremely important when pushing large, beamy, heavy vessels; much more important than horsepower. Diesel engines also produce more power per gallon of fuel burned, which makes them more efficient. Longevity is another advantage of diesel engines, because they produce their power at much lower R.P.M.s. Less R.P.M.s equals less wear and tear over time and longer life. Most diesel engines produce very high torque figures from idle to near wide-open throttle. Gas engines tend to produce high torque figures in the middle of their power curve that rapidly diminishes as the engines reach maximum R.P.M.

About now you are thinking there have to be disadvantages, well, you would be correct. The big one is cost! Diesel engines are more expensive than gas engines of similar power output. So, why is that? The main reason is that in the United States, we produce far more gas engines than diesel. As with anything, mass production lowers the cost of most goods considerably. Most inboard gas engines are based on General Motors car and truck engines. As you can imagine, G.M. produces millions of gas engines per year. Most inboard diesel engines are adapted from the diesel truck and industrial equipment market. Diesel engines in the 300 H.P. to 700 H.P. range are generally sourced from Cummins, Caterpillar, Volvo and Yanmar. Above 700 H.P., Caterpillar, M.T.U. and MAN are the most popular engines for vessels. Mass production does not explain the whole price discrepancy. Diesel engines tend to use more expensive materials and components than their gas counterparts do. The other side of this coin is maintenance costs. Just as diesel engines are more expensive, so are the parts and procedures required to maintain them.

So, what does all this mean? Gas inboard engines are a good choice for vessels under 35' in length that are primarily used for day cruising and shorter trips of less than 125 miles and are used for 100 or less hours per season. Inboard vessels over 35' in length are simply impractical to push with gas engines with any kind of efficiency. Smaller vessels may benefit from diesel engines if greater range is required, or if they are operated for more than 100 hours per season.

How about an example of the difference in efficiency of two similar vessels, one gas and the other diesel? I thought you would never ask!

- 1) 32' Twin Gas Inboard: 3600 R.P.M.; 27 Knots Cruise; 36.5 G.P.H.; Range on a full tank = 195 miles
- 2) 32' Twin Diesel Inboard: 2600 R.P.M.; 28 Knots Cruise; 28.2 G.P.H.; Range on a full tank = 263 miles

These are actual performance figures from the same model of vessel. As you can see, the diesel boat engines are turning 1000 R.P.M.s less than the gas boat at cruise, which is approximately 28% slower. The diesel boat is 1 knot faster and burning approximately 22% less fuel. When new, the diesel boat cost approximately 23% more than the gas boat. The larger the vessels get, the larger the discrepancies in efficiencies will become.

I hope that I did not bore you to death, but I am a boat geek and this stuff is interesting to me. I hope that it caught your interest as well! If you ever want to talk "shop," just stop in or give me a ring.